

What is claimed is:

1. A catalytic material comprising a catalytic component and a catalyst carrier for supporting said catalytic component; wherein the catalyst carrier
5 contains atoms that can be able to form covalent bonds with said catalytic component.
2. The catalytic material according to claim 1, wherein said catalyst carrier contains carbon.
3. A catalytic material comprising a catalytic
10 component and a catalyst carrier which comprises carbon; wherein said catalyst carrier has a structure in which part of the carbon atoms is replaced with atoms that can be able to form covalent bonds with said catalytic component.
- 15 4. The catalytic material according to claim 1, wherein said catalytic component is platinum or a platinum compound.
5. The catalytic material according to claim 1, wherein said catalytic component is at least one
20 member selected from the group consisting of platinum, ruthenium and their compounds.
6. The catalytic material according to claim 1, wherein said catalytic component is at least one member selected from the group consisting of platinum,
25 ruthenium, manganese, iron, cobalt, nickel, rhodium,

palladium, rhenium, and iridium, and their compounds.

7. A catalytic material comprising a catalytic component and a catalyst carrier for supporting said catalytic component; wherein said catalyst carrier
5 further contains a catalytic component and at least one member selected from the group consisting of nitrogen atoms, oxygen atoms, phosphor atoms, and sulfur atoms.

8. A membrane/electrode assembly in which at least
10 one of an anodic electrode for oxidizing a fuel and a cathodic electrode for reducing oxygen has the catalytic material of claim 1 and a proton-conductive material and in which a proton-conductive electrolyte membrane is formed between said anodic electrode and
15 said cathodic electrode.

9. A fuel cell having an anodic electrode and a cathodic electrode formed via an electrolyte membrane, said fuel cell further comprising the membrane/electrode assembly defined in claim 8.

10 10 A fuel cell comprising an anodic electrode for oxidizing a liquid fuel, a cathodic electrode for reducing oxygen, and an electrolyte membrane formed between said anodic electrode and said cathodic electrode; wherein either said anodic electrode or
25 cathodic electrode or both have a catalytic material

in which a catalyst carrier for supporting a catalytic component and said catalytic component are contained and in which said catalyst carrier contains atoms that can be able to form covalent bonds with said catalytic component.

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11. A fuel cell comprising an anodic electrode for oxidizing a liquid fuel, a cathodic electrode for reducing oxygen, and an electrolyte membrane formed between said anodic electrode and said cathodic

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electrode; wherein at least one of said anodic electrode and the cathodic electrode has a catalytic material which contains a carbon-containing catalyst carrier and a catalytic component, said catalyst carrier containing at least one atom selected from the group of nitrogen, sulfur, oxygen, and phosphor atoms.

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